PCT §34 amendment of claims

July 20, 2005

AMENDMENT

(amendment based on the provision of law Article 11)

Director-General of the Patent Office

1. Indication of an international application

PCT/JP2005/2237

2. Applicant (representative)

name	TOA Corporation
address	7-2-1 Minatojima-Nakamachi, Chuo-ku, Kobe-shi, Hyogo 6500046 Japan
Citizenship	JAPAN
Residence	JAPAN

3. Attorney

name	OHTSUKI Satoshi
address	Shin-osaka Central-tower 9F, 5-5-15 Nishinakajima, Yodogawa-ku, Osaka-shi, Osaka 5320011 Japan

4. Part to be amended

Claims

5. Contents of amendment

(1) On page 23, in claim 1, change "in at least one part of said filtering regions for each of filtering regions" to "a region designating step for discriminating important regions from unimportant regions in said input image data; and filtering means for performing a filtering processing on said unimportant regions for each of the filtering regions". In addition, in claim 1, change "is a cluster ..." to "is a cluster ..., and said filtering processing is performed using a low-pass filter common to said respective filtering regions".

(2) On page 23, in claim 2, change "in at least one part of said filtering regions for each of said filtering regions" to "region designating means for discriminating important regions from unimportant regions in said input image data; and filtering means for performing a filtering processing on said unimportant regions for each of the filtering regions". In addition, in claim 2, change "is a cluster ..." to "is a cluster ..., and said filtering processing is performed using a low-pass filter common to said respective filtering regions".

(3) On page 23, in claim 3, before "within each of said filtering regions" insert "discriminated as said unimportant region".

(4) On pages 23 to 24, in claim 4, change "said filtering region dividing means divides said input image data into said filtering regions each at a size coincident with a size of each of said block regions" to "pickup image data picked up by a monitoring camera is input as said input image data, and said important regions and said unimportant regions are designated by an operator".

(5) On page 24, in claim 5, change "said data compressing means includes coding means for performing an entropy coding on a quantized

DC coefficient based on a quantized DC coefficient of an adjacent block region of said block regions, and said filtering region dividing means divides said input image data into said filtering regions each consisting of two or more adjacent block regions" to "pickup image data picked up by a monitoring camera is input as said input image data, and said important regions and said unimportant regions are determined based on a detection signal from a moving body detection sensor".

(6) On page 24, in claim 9, change "performing a filtering processing on each of at least one part of said filtering regions" to "region designating means for discriminating important regions from unimportant regions in said input image data; and filtering means for performing a filtering processing on said unimportant regions for each of said filtering regions". In addition, in claim 9, change "is a cluster ..." to "is a cluster ..., and said filtering processing is performed using a low-pass filter common to said respective filtering regions".

(7) On page 25, in claim 11, change "in at least one part of said filtering regions for each of filtering regions" to "region designating means for discriminating important regions from unimportant regions in said input image data; and filtering means for performing a filtering processing on said unimportant regions for each of the filtering regions". In addition, in claim 11, change "is a cluster ..." to "is a cluster ..., and said filtering processing is performed using a low-pass filter common to said respective filtering regions".

(8) On page 25, in claim 12, change "in at least one part of the filtering regions for each of said filtering regions" to "region designating means for discriminating important regions from unimportant regions in

said input image data; and filtering means for performing a filtering processing on said unimportant regions for each of said filtering regions". In addition, in claim 12, change "is a cluster ..." to "is a cluster ..., and said filtering processing is performed using a low-pass filter common to said respective filtering regions".

6. List of attached documents

(1) Claims, pages 23 to 25 and 25/1

CLAIMS

1. An image compression method comprising:

a preprocessing step of performing preprocessing on input image data; and

a data compressing step of performing a data compression processing on preprocessed image data, wherein

said preprocessing step includes: a filtering region dividing step of dividing said input image data into a plurality of filtering regions; a region designating step of discriminating important regions from unimportant regions in said input image data; and a filtering step of performing a filtering processing on said unimportant regions for each of said filtering regions to attenuate a high frequency component of said input image data,

said data compressing step includes: a block region dividing step of dividing said preprocessed image data into a plurality of block regions, each shape of which is rectangular; an orthogonal transforming step of performing an orthogonal transform processing said image data for each of said block regions; and a quantizing step of quantizing said image data that has been subjected to said orthogonal transform processing for each of said block regions,

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2n (where n is a natural number) and each having a size of two or more pixels, and

said filtering processing is performed using a low-pass filter common to said respective filtering regions.

2. An image compression apparatus comprising:

preprocessing means for preprocessing input image data; and

data compressing means for performing a data compression processing on preprocessed image data, wherein

said preprocessing means includes: filtering region dividing means for dividing said input image data into a plurality of filtering regions; region designating means for discriminating important regions from unimportant regions in said input image data; and filtering means for performing a filtering processing on said unimportant regions for each of said filtering regions to attenuate the high frequency component of said input image data,

said data compressing means includes: block region dividing means for dividing said preprocessed image data into the plurality of block regions, each shape of which is rectangular; orthogonal transforming means for performing an orthogonal transform processing on said image data for each of said block regions; and quantizing means for quantizing said image data that has been subjected to said orthogonal transform processing for each of said block regions,

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2n (where n is a natural number) and each having a size of two or more pixels, and

said filtering processing is performed using a low-pass filter common to said respective filtering regions.

3. The image compression apparatus according to claim 2, wherein

said filtering means performs a unification processing for making pixel data within each of said filtering regions discriminated as said unimportant region coincide with one another.

4. The image compression apparatus according to claim 2, wherein

pickup image data picked up by a monitoring camera is input as said input image data, and

said important regions and said unimportant regions are designated by an operator.

5. The image compression apparatus according to claim 2, wherein

pickup image data picked up by a monitoring camera is input as said input image data, and

said important regions and said unimportant regions are determined based on a detection signal from a moving body detection sensor.

6. The image compression apparatus according to claim 2, wherein

said filtering region dividing means divides said input image data into said filtering regions smaller in size than said block regions.

7. The image compression apparatus according to claim 2, wherein

said filtering region dividing means divides said input image data into said filtering regions of two or more types different in size.

8. The image compression apparatus according to claim 2, further comprising:

an image data output terminal for outputting said preprocessed image data.

9. An image transmission system in which a preprocessing apparatus is connected to a data compression apparatus through a first communication line, and in which said data compression apparatus is connected to a data expansion apparatus through a second communication line, wherein

said preprocessing apparatus includes: the filtering region dividing means for dividing input image data into a plurality of filtering regions; region designating means for discriminating important regions from unimportant regions in said input image data; filtering means for performing a filtering processing on said unimportant regions for each of said filtering regions to attenuate a high frequency component of said input image data; and data transmission means for transmitting said image data that has been subjected to said filtering processing to said first communication line,

said data compression apparatus includes: block region dividing means for dividing preprocessed image data into a plurality of block

regions, each shape of which is rectangular; orthogonal transforming means for performing an orthogonal transform processing on said image data for each of said block regions; quantizing means for quantizing said image data that has been subjected to said orthogonal transform processing for each of said block regions; and data transmitting means for transmitting encoded image data to said data expansion apparatus through said second communication line,

each of the filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2n (where n is a natural number) and each having a size of two or more pixels, and

said filtering processing is performed using a low-pass filter common to said respective filtering regions.

10. The image transmission system according to claim 9, further comprising:

an image display apparatus that is connected to said first communication line, and that displays said preprocessed image data.

11. A data compression preprocessing apparatus for preprocessing image data input to a data compression apparatus that divides said image data into a plurality of rectangular block regions, each shape of which is rectangular, and that performs an orthogonal transform and a quantization on said input data for each of the block regions, the data compression preprocessing apparatus comprising:

filtering region dividing means for dividing said input image data

into a plurality of filtering regions;

region designating means for discriminating important regions from unimportant regions in said input image data; and

filtering means for performing a filtering processing on said unimportant regions for each of said filtering regions to attenuate a high frequency component of said input image data, wherein

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2n (where n is a natural number) and each having a size of two or more pixels, and

said filtering processing is performed using a low-pass filter common to said respective filtering regions.

12. A computer program for preprocessing image data input to a data compression apparatus that divides said input image data into a plurality of block regions each shape of which is rectangular, and that performs an orthogonal transform and a quantization on said input image data for each of said block regions, the computer program comprising procedures for executing:

a filtering region dividing step of dividing said input image data into a plurality of filtering regions;

a region designating step of discriminating important regions from unimportant regions in said input image data; and

a filtering step of performing a filtering processing on said unimportant regions for each of the filtering regions to attenuate a high frequency component of said input image data, wherein

each of said filtering regions is a cluster consisting of one or more adjacent rectangular regions, each of the rectangular regions being obtained by equally dividing each of said block regions by 2n (where n is a natural number) and each having a size of two or more pixels, and

said filtering processing is performed using a low-pass filter common to said respective filtering regions.

AMENDED SHEETS